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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/722,659	09/27/1996	D. CLARK BENNETT	104385.140	4359

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EXAMINER	
JAMROZ, MARGARET E	
ART UNIT	PAPER NUMBER
1644	

DATE MAILED: 12/18/2001 36

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	08/722,659	BENNETT ET AL.	
	Examiner	Art Unit	
	Margaret E Jamroz	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,18 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,18 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The Art Unit location and the examiner of your application in the PTO have changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Megan Jamroz, Art Unit 1644, Technology Center 1600.

2. Applicant's amendment, filed October 3, 2001 (Paper No. 32), is acknowledged.
Claims 1-7 and 18-19 are pending.

3. Formal drawings have been submitted which fail to comply with 37 CFR 1.84. Please see the enclosed form PTO-948.

4. Applicant's IDS, filed June 17, 1999 (Paper No. 18), is acknowledged; however, the references could not be located. The examiner apologizes for the inconvenience. Applicant is invited to produce documents cited in the IDS.

5. The obviousness-type double patent rejection of claims 1-7 and 18-19 over U.S. Patent 5,997,863 is hereby withdrawn in view of the terminal disclaimer filed 8/14/01 by Dr. Robert Heft.

The common ownership rejection of claims 1-7 and 18-19 over U.S. Patent 5,997,863 is hereby withdrawn in view of the Declaration of Assignee under 37 CFR 1.132 filed 8/14/01 by Dr. Robert Heft.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.
>
> The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).
> (f) he did not himself invent the subject matter sought to be patented.

Zimmerm

7. Claims 1-7 and 18-19 stand rejected under 35 U.S.C. 102(e) or (f)as being anticipated by U.S. Patent 5,997,863, of record, for the same reasons set forth in Paper Nos: 22 and 26.

8. Applicant's arguments filed October 3, 2001 have been fully considered but they are not persuasive.

9. Applicant's Declaration of Inventor under 37 CFR 1.132, filed 10/3/01 by Joseph Zimmermann is acknowledged. Said declaration states that the invention claimed in instant application is not described in U.S. Patent 5,997,863 in Example 8. The declaration states that the inventors are the same.

Statements of disagreement without objective evidence are not sufficient to show that the invention was not described in the '863 patent.

Further, a statement that the inventors are the same in the instant application and U.S. Patent 5,997,863 without evidence as to the absence of Inventors Vlodavsky and Broughton from the instant application, and the absence of Inventors Fink, Grouix, Cauchon, and Hsia from the '863 patent lacks sufficient support that the inventive entity is the same.

10. The rejection of claims 1-7 and 18-19 under 35 U.S.C. 103(a) is withdrawn as a result of the Declaration under 37 CFR 1.131, filed 1/8/99 by Bennett, Cauchon, Grouix, Hsia, Danagher, and Zimmmermann.

The following are new grounds of rejection:

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claim 6 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for heparinase enzyme expressed from a recombinant nucleotide sequence in *E. coli,* does not reasonably provide enablement for heparinase enzyme expressed from a recombinant nucleotide sequence in *Flavobacterium heparinum*. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make AND/OR use the invention commensurate in scope with these claims. Other than isolating heparinase enzyme from *Flavobacterium heparinum* and expressing a recombinant nucleotide sequence in *E.. coli*, applicant has not taught how to isolate heparinase enzyme from *Flavobacterium heparinum* and then putting it back into the same organism.

13. Claims 1-5 and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,567,417, of record (filed May 1, 1995, having priority to Nov. 17, 1993).

The '417 patent teaches a method of decreasing localized inflammatory responses arising from an ischemia/reperfusion injury (i.e. would repair) in a tissue of a patient via topical application/implantation with an effective dosage of heparinases I, II, and III from *Flavobacterium heparinum* which degrade heparin and heparan sulfate from cell surfaces (see entire document, column 1, paragraph 3, and column 4 in particular). The release of heparin and heparan sulfate results in degradation of the basement membrane which serves as a resevoir for cytokine-like molecules and bFGF sequestered in the matrix, which are then released (see entire document; column 3 and Example I in particular). Claims 2-5 are included because the downstream effects of heparinase are inherent properties of the enzyme. Claim 19 is included because a wound is a type of traumatic shock. The '417 reference teaches parenteral, intradermal, subcutaneous, or topical administration of the heparinase enzyme (see column 16, paragraph 2 in particular). Thus, it would have been well within the purview of one of ordinary skill in the art at the time the invention was made to design an intravascular solution of heparinase enzyme to decrease localized inflammation arising from an ischemia/reperfusion injury.

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,567,417, of record, in view of U.S. Patent 5,714,376 (filed October 1991), newly cited.

The '417 patent has been discussed above.
The '417 patent does not teach heparinase enzyme expressed from a recombinant nucleotide sequence in an organism in which it does not naturally occur in claim 7.

The "376 patent teaches a method for cloning the heparinase I gene and expressing the gene in two expression systems in *E. Coli* (see entire document; the abstract and Example 2 in particular). The '376 patent further teaches that heparin influence wound healing and that heparinase is the only enzyme cloned and characterized which degrades heparin used in surgery (see column 3, paragraphs 4-5, and column 2, paragrph 1 in particular).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the heparinase produced in *E. coli* taught by the '376 patent in the teachings of the '417 patent to administer a recombinant heparinase III, expressed in an organism in which it does not naturally occur, to decrease a localized inflammatory response.

One of ordinary skill in the art would have been motivated to do this because the heparinase isolated and expressed in the '376 patent included the heparinase III taught by the '417 patent and encompassed the same structural and functional properties.

16. No claim is allowed.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Megan Jamroz, whose telephone number is (703) 308-8365. The examiner can normally be reached Monday to Friday from 8:00 to 4:30. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached at (703) 308-3973. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-0196.

Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center telephone number is (703) 305-3014.

Margaret (Megan) Jamroz, Ph.D.
Patent Examiner
Technology Center 1600
December 7, 2001

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SUPERVISORY PATENT EXAMINER
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